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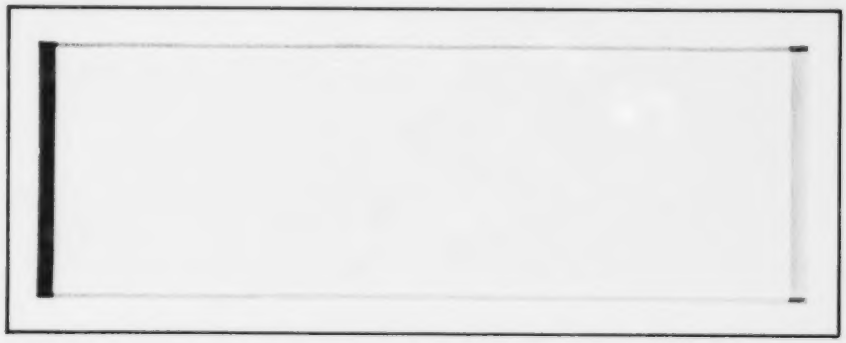

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FACTORS AFFECTING CANADIAN IMPORTS OF LOW-GRADE BEEF FROM OFFSHORE

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INTRODUCTION

Canada is a significant importer of beef. For the period 1981-85 we imported an average of 140 million lb (product weight) of beef per year (ranging from 113 to 170 million lb). This accounted for about 10% of total beef consumption. The largest proportion of our beef imports are from "offshore", that is from countries other than the United States. For the period 1981-85 imports from offshore were 78%, on average, of all beef imports.

Canada has been importing beef from offshore only since the late 1960's. However this importation quickly became a hot political issue, particularly after 1974-75 when the world beef situation was such as to cause a major increase in Canada's imports (imports increased by over 60% during 1976). Cattle producers felt that, without regulation, imports from offshore would seriously depress Canadian cattle prices. Consequently they lobbied throughout the late 1970's for import legislation. These efforts resulted in the enactment of the Meat Import Act in February 1982.

Subsequently, and notwithstanding the existence of the Meat Import Act imports of subsidized beef from Ireland and Denmark increased to such an extent as to cause the Canadian Cattlemen's Association to petition for countervailing duties to be placed on EEC beef. The investigations by Revenue Canada and the Canadian Import Tribunal (under the authority of the Special Import Measures Act) took place between October 1985 and July 1986. The investigations concluded that beef imports from the EEC were subsidized and held the potential to injure Canadian cattlemen. As a consequence countervailing duties were imposed (as from July 25, 1986) in the amount of about $0.81 per lb on Irish product and $0.74 on Danish product.

Empirical analyses (Charlebois) suggest that beef imported from offshore does have a depressing effect on Canadian cattle prices, particularly on slaughter cow prices. Canada's virtually unimpeded access to the United States beef

market however means that the price impact of imports is tempered. As imports increase and prices soften Canadian exports of low-grade beef and live cows to the U.S. increase. Since Canadian low-grade beef and live cow prices have been on an "export basis" since at least 1981 there has been a very close relationship between changes in imports from offshore and changes in exports to the U.S. Indeed Charlebois has estimated that a 1 million lb increase in offshore imports results in about a 900,000 lb increase in exports.

The existence of this "displacement effect" and the perception held by cattle producers in the United States that the EEC was thus using Canada as a "backdoor"[1] into the U.S. was a major factor causing the Canadian Import Tribunal to conclude that unrestricted imports of beef from the EEC posed a menace to the Canadian cattle industsry.

Notwithstanding the economic and political importance of beef imports from offshore very little analysis has been done as regards the factor determining the level of Canadian imports. This paper attempts to fill that information gap.

Understanding the factors which influence beef imports requires firstly an understanding of the Canadian beef market and the nature of import demand. In particular this requires an explanation of the Canadian low grade beef market, which is the subject of the first section of the paper. The paper then analyses the economic and political factors affecting beef imports from offshore. A quantitative analysis of Canada's offshore beef imports from Australia and New Zealand is presented in the Appendix.

What type of beef is imported from offshore?

The type of beef imported into Canada from "offshore" is quite distinct from that imported from the United States. Beef imported from the United States is primarily higher-quality fed beef. That imported from "offshore" is derived

1 EEC exports to the U.S. being limited to 5000 tonnes per year.

from carcasses which are, by North American standards of lower quality (in terms of age and/or fat cover); it is practically all boneless frozen beef destined for further processing before final consumption. A smaller proportion of imports is of cuts purchased by institutions or lower quality restaurants. It is estimated that, on average about 60 percent of beef imported from offshore is for further processing while about 40 percent is of cuts (Lattimore and Degorter, 1979).

The Canadian low-grade beef market

a. The product

Two distinct beef markets exist in North America. The largest proportion is "high-grade" beef derived from youthful, well-finished steers and heifers and sold to consumers as fresh recognizable cuts in retail stores or in quality restaurants.

Low-grade beef is derived from cows, all beef from bulls, and "lower" quality cuts from fed steers and heifers. This beef generally undergoes some amount of processing prior to being offered to consumers, since it is excessively tough, fat or lean or is of poor colour.

The definition of what constitutes "high" and "low"-grade beef is arbitrary to a certain extent. In particular, while there is general agreement with regard to the characteristics of the major parts of high and low-grade beef, there is a certain volume of beef production which is substitutable among categories depending on relative prices.

The end uses of low-grade beef are numerous with different demand characteristics for each use. For example the enduses of grinding or manufacturing-quality low-grade beef are primarily the following:

1. hamburger patties for the food service industry; 2. ground beef for retail sale; 3. processed meat (or "cookroom") products such as weiners, sausages, etc.; 4. other processed meat products such as canned meat, soups or pies.

Low-grade beef "cuts" are primarily used in lower quality restaurants or in institutions.

b. The market

Those empirical studies which have distinguished between high- and low-grade beef markets suggest that the demand parameters in the two markets are significantly different. Table I presents estimates of demand elasticites for two grades of beef in Canada. The estimates show that low-grade beef is less responsive to changes in its own price than is demand for high-grade beef.

TABLE I ELASTICITIES OF DEMAND FOR HIGH- AND LOW-GRADE BEEF IN CANADA[1]

	High-quality	Low-quality
Own price	-0.74	-0.41
Price of pork	0.04	0.31

[1] Estimated over the period 1967-85

Source: Pierre Charlebois, "Modèle Econométrique du Boeuf à Demande Désagrégée".

The higher cross-price elasticity of demand for low-grade beef with respect to pork prices is consistent with conventional knowledge as regards the substitutability of the two products. Processors are, for practical purposes, indifferent as to whether they use beef or pork in production of their products (weiner, sausage, etc.). Least cost formulation (i.e. price) is the major determining criterion. A similar high degree of substitutability exists in other sectors of the low-grade beef industry.

Figure I shows that from 1967 to 1985 estimated per capita consumption of low-grade beef ranged from a high of about 42 pounds (lb.) in 1976 to a low of about 30 lbs. in 1980. As one would expect, however, (given the lower own price demand elasticity for low-grade beef) per capita consumption of low-grade has been less variable than that of high grade.

Canada has imported significant volumes of low-grade beef only since 1969 (Table II). In the 60's prior to 1969 imports from offshore averaged only about 12 million lbs. (product weight) per year. In 1969, they were over 100 million lbs. and since then have ranged between 80 and 180 million lbs. They averaged 112 million lbs. per year for the period 1969-85.

From 1979 to 1978 imports, which were all from Oceania, trended slightly upward with an average annual growth rate of 6 percent. From 1978 to 1984 imports from Oceania fell sharply, from about 125 million lbs. to about 75 million lbs with the downturn more precipitous for Australia than for New Zealand. Imports from both countries recovered sharply in 1985, however.

Beginning in 1981, Canada began importing low-grade beef from the EEC and Nicaragua. Imports from the EEC grew rapidly from 1981 to 1984. They decreased in 1985 because of the imposition of import quotas.

The high level of imports from the EEC in 1984, followed by the sharp recovery of imports from Australia and New Zealand in 1985 meant that imports in both years were well above the post-1969 average.

Factors Influencing Low-Grade Beef Imports from Offshore

Generally speaking beef from offshore will be imported into Canada when that product is priced competitively relative to comparable Canadian product. A number of factors affect the price "comparability" of Canadian and foreign low-grade beef. For example, Oceanic grinding beef normally draws a premium over comparable Canadian product because of a greater degree of consistency (less variation) of fat content and lower bacterial counts; Irish grinding beef normally has been discounted because of a lesser degree of consistency and because of a higher risk of rejection of individual shipments by Canadian health inspectors.

In other words imports vary in relation to the spread between Canadian and foreign low-grade beef prices. This is demonstrated for the case of Australia in Table III.

TABLE II CANADIAN IMPORTS OF LOW-GRADE BEEF, 1968-85

	Total	New Zealand	Australia	EEC	Nicaragua
	(million lb, product weight)				
1968	16.4	6.3	9.9	-	-
1969	100.8	74.8	25.9	-	-
1970	123.9	73.3	50.6	-	-
1971	83.3	61.2	22.1	-	-
1972	95.9	47.8	48.2	-	-
1973	109.7	48.2	61.4	-	-
1974	98.0	54.7	43.4	-	-
1975	115.0	53.9	61.2	-	-
1976	181.5	78.2	103.2	-	-
1977	106.6	56.9	49.6	-	-
1978	123.9	66.3	55.5	-	-
1979	108.5	57.2	51.2	-	-
1980	100.9	53.8	47.1	-	-
1981	94.7	50.1	41.8	2.7	0.2
1982	101.8	49.8	43.8	7.7	0.4
1983	106.7	54.6	31.6	14.8	1.7
1984	126.6	37.2	28.6	50.2	9.7
1985	121.4	51.1	41.4	24.4	4.3

Source: Statistiscs Canada, Imports by Commodity and Country, Cat. No. 65-007.

TABLE III COMPARISON OF CANADIAN AND AUSTRALIAN BONELESS MANUFACTURING BEEF PRICES, 1981-85

	Price of 85% C.L.[1] Fresh Boneless Manufacturing Beef, Toronto	Forward Price of 85% C.L. Frozen Australian Boneless Manufacturing Beef, Toronto	Differential	Canadian Imports from Australia
	($ per pound)			(million lb)
1981	1.27	1.33	.06	41.8
1982	1.24	1.28	.04	43.8
1983	1.26	1.34	.08	31.6
1984	1.23	1.32	.09	28.6
1985	1.27	1.30	.03	41.4

[1]C.L. refer to "chemical lean"; the "lean" content of meat is established on the basis of a chemical test.

Sources: CANFAX, Weekly Summary, Cattle Market Analysis and Outlook
Statistics Canada, Catalogue number 65-007

There are, however, numerous factors which affect the competitiveness of low-grade beef from offshore in the Canadian market:

1. The supply/demand situation in Canada combined with the influence of the low-grade beef (boneless beef) market in the United States

Historically, Canada has been a surplus producer of low-grade beef. Table IV shows that the excess increased from .4 - 1.7 lbs. per capita in 1980-81 to over 3 lbs. during the period 1982-85. By definition this excess means that Canada has been a net exporter of low-grade beef; and since practically all Canadian exports of low-grade beef have been to the United States it also means that Canadian product has been priced below equivalent quality product in the United States. This is clearly demonstrated in Table V in which shows price levels for manufacturing quality cows in Canada and the U.S. from 1975 to 86.

TABLE IV ESTIMATED PER CAPITA PRODUCTION AND DISAPPEARANCE OF LOW-GRADE BEEF IN CANADA, 1975-85

	Per capita[1] Production	Per Capita Disappearance	Production Minus Disappearance
		- lb -	
1975	36.5	40.0	-3.5
1976	39.9	41.8	-1.9
1977	41.5	41.1	0.4
1978	37.7	38.2	-0.5
1979	31.3	31.6	-0.3
1980	32.1	30.4	1.7
1981	31.5	31.1	0.4
1982	35.1	32.1	3.0
1983	34.9	31.7	3.2
1984	34.3	31.2	3.1
1985	36.2	32.6	3.6

[1] Does not include carcass weight equivalent of live cow exports

Source: Pierre Charlebois, "Modèle Économétrique du Boeuf à Demande Désagrégée".

TABLE V MANUFACTURING - QUALITY COW PRICES, CANADA AND THE UNITED STATES 1975-86

	Canner and cutter cows, Omaha	D3,5 cows Winnipeg	Winnipeg minus Omaha
		- CDN $ per 100 lb -	
1975	17.43	19.32	+1.89
1976	21.56	21.30	-0.26
1977	24.33	22.74	-1.59
1978	38.92	36.09	-2.83
1979	54.88	55.34	+0.46
1980	49.78	50.46	+0.68
1981	47.49	44.91	-2.58
1982	45.04	42.73	-2.31
1983	44.78	44.39	-0.39
1984	46.35	45.51	-0.84
1985	48.99	46.11	-2.68
1986[1]	48.68	47.56	-1.12

[1] First 6 months

Source: Agriculture Canada, Livestock Market Review; USDA, Livestock and Meat Statistics

For those exporters which are able to access both the Canadian and U.S. beef market therefore a relevant consideration as to whether they export to Canada is the existing price level of low-grade beef in the United States. Since Canadian low-grade beef prices were priced below (and at times well below) U.S. prices and if no import restraints exist for entry into the U.S., the potential imports into Canada from such countries were directed to the U.S.

It would be noted that the only exporters to Canada which also face unrestricted access to the U.S. are Australia and New Zealand. It is clear, therefore, that the weakness of the Canadian boneless beef market relative to the U.S. market during the 1980's was a major factor causing the reduced volume of imports from those two countries during the period (figure II). However, the strengthening of the Canadian low-grade market relative to the U.S. market during the first half of 1986 resulted in an increase in combined imports by Canada from these two countries of about 23 percent.

With the relative level of supplies of low-grade beef in each of Canada and the U.S. being the major determinant of the price relationship between the two countries, one would anticipate that Canadian low grade beef prices will remain strong relative to those in the U.S. for at least the next year (because of the increased U.S. supplies deriving from their dairy herd buy-out program). One would expect, therefore, continued relatively high levels of imports from Oceania into Canada.

2. The existence of periodic and permanent restriction on imports of beef into the U.S.

U.S. restrictions on beef imports fall into two types (aside from the ban on imports from countries in which endemic foot and mouth and other diseases exist):

a) the periodic restrictions resulting from the imposition of their Beef Import Law;

b) ongoing restrictions or embargoes.

The imposition of restrictions under the Beef Import Law, without the enforcement of similar restrictions in Canada has resulted in a diversion of Oceanic product to Canada. This occurred during both 1976 and 1978. It should be recalled, of course, that when quotas are enforced under the Law the U.S. also restricted imports of beef from Canada are. However, Canada enjoys the privilege of being able to continue to export live product. Consequently, prices of low-grade beef in Canada are only slightly affected because of the enforcement of the U.S. Law. Thus the enactment of quotas in the U.S. makes Canada appear as an attractive alternative market.

The United States has a permanent limitation on beef imports from the EEC. This limitation results from an unusual juxtaposition of circumstances during the Tokyo Round of General Agreement on Tariffs and Trade (GATT) negotiations. Prior to the completion of those negotiations, United States legislation permitted the application of countervailing import duties without the application of an injury test. The U.S. gave up this privilege when they became signatories to the GATT's Subsidy Code in 1979. Prior to that, however, the EEC had requested during the course of the negotiations a non-countervailable beef quota into the U.S. In exchange they offered the U.S. a levy-free quota for high-quality beef into the EEC. The deal was struck with the EEC obtaining a 5,000 tonne quota into the U.S. and the U.S. a 10,000 tonne quota into the EEC (in which Canada subsequently won the right to participate[2]).

Consequently, the EEC's access to the United States is limited to 5,000 tonnes. As a result, however, the fact that U.S. low-grade beef prices have been higher than those in Canada did not shield Canada against imports from the EEC as it did for imports from Australia and New Zealand.

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2 see GATT, Basic Instruments and Selected Documents, 28th Supplement, Geneva, March 1982 pp.92-100

3. Canadian import restrictions

Beef imports into Canada were under some form of control in every year from 1974 to 1979, Since the introduction of the Meat Import Act in 1982 quantitative restrictions have been introduced only once, in 1985. The volume of quotas and other restrictions placed on beef imports and the dates of their application are summarized in Table VI.

TABLE VI CANADIAN GLOBAL QUANTITATIVE IMPORT RESTRICTIONS OF BEEF AND VEAL 1974-1986

Period	Amount of Quota (million lb.)
August 1974 - August 1975	125.8
August 1975 - December 1975	48.6
October 1976 - December 1976	17.5
January 1977 - December 1977	144.8
January 1978 - December 1978	146.9
January 1979 - December 1979	155.0
January 1985 - December 1985	205.5[1]

[1] Including 43.5 million lb of high-grade beef from the United States.

4. The supply-demand situations in countries exporting to Canada

The supply-demand (particularly production) situation in these countries has a significant influence on the volume of their exports to all destinations including Canada. There are a number of unique factors affecting the supply-demand situations in each of the three main suppliers of low-grade beef to Canada. A review of the factors in each of the suppliers follows:

a) Australia

As in most countries Australia's beef production is primarily dependent on the profitability of cattle production which is, in turn, primarily determined by cattle prices. As in most countries as well the price/supply response relationship gives rise to cyclical movements in cattle numbers and beef production. The dynamics of the Australian cattle cycle are well documented (Reeves, 1982). It is sufficient to say that cattle production in Australia is responsive to price. The Bureau of Agricultural Economics (BAE), for example, has estimated an elasticity of supply with respect to price for beef, lagged five years, of 0.66.

The Australian situation is unusual, however, as regards the extent to which domestic cattle producers depend on foreign markets. Since the late 1960's exports have accounted for over 50 percent of Australia's beef production in any year. Most significantly 50 percent of all exports have been to the United States (Table VII). It is not surprising that Australian cattle prices are highly correlated with movements in manufacturing beef prices in the United States (Hinchy, 1978) (Table VIII).

TABLE VII PROPORTION OF AUSTRALIAN BEEF PRODUCTION EXPORTED IN TOTAL AND TO THE U.S.A.

	Average Annual Beef Production	Average Annual[1] Exports	Exports as a % of Production	Exports to the USA as a % of Total Exports
	- 000 tonnes	-	- % -	- % -
1971-75	1,382	693	50	62
1976-80	1,898	995	52	50
1981-85	1,410	735	52	54

[1] product weight

Source: Australian Meat and Livestock Corp., Statistical Review of Livestock and Meat Industries, various issues.

TABLE VIII PRICES FOR AUSTRALIAN BEEF IN THE U.S. AND FOR LIVE CATTLE IN AUSTRALIA, 1977-85

	Boneless Frozen[1] Cow Beef, New York	Weighted Average Price at[2] Cattle Capital City Saleyards
	- Australian $ per kg -	
1977	.99	.47
1978	1.51	.68
1979	2.21	1.45
1980	2.00	1.45
1981	1.70	1.27
1982	1.81	1.15
1983	2.16	1.50
1984	2.12	1.67
1985	2.40	1.72

[1] 85 percent chemical lean

[2] slaughter cattle, carcass weight

Sources: Australian Meat and Livestock Corp., Statistical Review of the Livestock and Meat Industries, various issues.
GATT, International Meat Council, The World Market for Bovine Meat.

It is equally clear that the sharp decrease in North American cattle and beef prices during 1975-76 were a major contributing factor to the decrease in Australian cattle prices during the same year. Similarly, the recovery of North American prices during 1978-80 caused Australian prices to rise. (The price effects being compounded by the worst drought of the century).

A close relationship exists between Australia's beef production and beef exports (Table IX). Since 1975 the year-to-year changes (and the magnitude of those changes) in exports have paralleled changes in beef production.

TABLE IX CATTLE NUMBERS, BEEF PRODUCTION AND BEEF EXPORTS, AUSTRALIA, 1975-85

	Cattle Nos.[1]	Beef Production	Beef Exports[2]
	(million head)	(000 tonnes)	(000 tonnes)
1975	32.8	1704	745
1976	33.4	1899	855
1977	31.5	2158	1087
1978	29.3	2131	1147
1979	27.1	1770	1041
1980	26.2	1534	846
1871	25.2	1421	672
1982	24.6	1678	898
1983	22.5	1412	726
1984	22.2	1248	617
1985	22.8	1338	707

[1]At March 31
[2]Carcass weight equivalent

Source: GATT, International Meat Council, The World Market for Bovine Meat.

Although the price of cattle is a major factor affecting beef production, and therefore beef export availability, there are several other factors of equal significance. The most important of these is weather conditions. For example, drought conditions from 1982 to 1984 were responsible for prolonging the most recent herd liquidation by three years. This prolongation resulted in the trimming of an additional 2-3 million head of cattle from the herd. The effect of the drought on production and exports was most apparent in 1982. Canada also imported more from Australia in that year.

Developments in both the grain and sheep industries also influence the beef industry. In the four year period to 1972, for example, during which wool prices were low, the number of cattle on sheep farms increased at 20 percent per year (Reeves and Hayman, 1975).

Finally, it should be noted that, in view of the overwhelming influence of export market conditions on Australian producers' returns, the value of the Australian dollar vis-à-vis foreign currencies has a major impact on those returns and therefore on supply response in Australia. Between 1975 and 1985, the Australian dollar ranged from a high of U.S. $1.15 to a low of U.S. $0.70. The high occurred in 1981 and it declined steadily through to 1986. Therefore, although the returns on beef sold to the U.S. were U.S. $0.35 per kg lower in 1985 than in 1981, the returns in Australia (on a c.i.f. basis) were about $1.11 per kg higher (Table X).

It seems clear therefore, that the depreciation of the Australian dollar these last five years has been a significant factor in maintaining Australian cattle prices. It was, therefore, a significant factor in arresting cattle herd liquidation. Consequently, it sets the stage for higher levels of production and exports during the second half of the 1980's.

TABLE X. PRICES FOR AUSTRALIAN BEEF IN THE U.S.A. AND THE AUSTRALIAN $/U.S. $ EXCHANGE RATE

	Boneless Frozen Cow Beef[1], New York		
	U.S. $ per kg (cif)	Australian (cif)	U.S. $ per Australian $
1977	.98	.88	1.11
1978	1.51	1.32	1.14
1979	2.78	2.48	1.12
1980	2.63	2.31	1.14
1981	2.34	2.03	1.15
1982	2.20	2.16	1.02
1983	2.30	2.56	.90
1984	2.16	2.45	.88
1985	2.0	2.85	.70

[1]85 percent chemical lean

Source: AMLC, Statistical Review of the Livestock and Meat Industries
International Monetary Fund, International Financial Statistics, various issues

b) New Zealand

As in Australia, New Zealand beef exports demonstrate a close relationship to domestic beef production (Table XIII). The New Zealand beef industry is even more exposed to the international market place, and to the North American market in particular, than is Australia (Table XI).

It is clear therefore that foreign market developments have a major influence on the price paid for cattle in New Zealand. In fact the price paid for cattle at export plants is tied directly to export beef prices. Consequently, New Zealand beef production and export availabilities have been highly correlated with the North American beef cycle during the last 10 years.

Notwithstanding this higher exposure to international markets it is probably fair to say that beef output and exports are affected more by factors other than price than is beef production in Australia.

TABLE XI

	New Zealand[1] Beef Exports	% Exported	% of Exports to U.S.A.
	(000 tonnes)	(%)	(%)
1984	197.2	78	74
1985	226.3	74	76

[1]Product Weight

Source: GATT

TABLE XII. CATTLE NUMBERS IN NEW ZEALAND[1]

	Beef Cows	Dairy Cows	Total Cattle and Calves
		- thousand head -	
1975	2311	2062	9292
1976	2230	2036	9017
1977	2139	2007	8738
1978	1916	2020	8418
1979	1823	2002	8022
1980	1879	1999	8131
1981	1781	1976	8035
1982	1576	2005	7913
1983	1448	2098	7631
1984	1440	2165	7776
1985	1450	2175	7920

[1]At June 30

Source: New Zealand Meat and Wool Boards Economic Service.

Due to a rundown in beef cow numbers since 1975 (a 38 percent decrease between 1975 and 1984) and stable dairy cow numbers, dairy cows now outnumber beef cows by 50 percent. This suggests that beef output is probably affected more by developments in the dairy industry than by beef prices. This is one reason why beef output and exports in New Zealand have fallen by less and remained more stable than in Australia (Table XII).

From its peak in 1976 to its low in 1984 beef production fell by 23 percent, Australian production fell by 42 percent. From 1977 to 1984, N.Z. exports fell by 25 percent (63 Kt) while Australia exports fell by 46 percent.

The other major influence on the New Zealand beef industry is the close relationship between cattle and sheep production. In general, cattle raising is carried on in conjunction with sheep farming. The strength of world sheepmeat and wool prices was therefore undoubtedly a factor in the destocking of the beef herds. Conversely the weakness of those markets (particularly the lambmeat market) in 1985 and their likely continued weakness during 1986-87 will likely positively influence beef cowherd growth.

Finally, until 1985 the beef production situation in New Zealand was influenced to a certain degree by two domestic subsidy programs for beef producers and by similar programs offered to sheep producers. The producer program was referred to as the "Price Smoothing Scheme" and was largely producer financed. Under the program minimum prices were set for export grades of cattle. When market prices fell below these minima, payments were made and when prices rose above a fixed upper price levies were collected. The governmental program was referred to as the "Supplementary Minimum Price Scheme". It functioned by setting minimum prices for cattle higher than the producer minima. Consequently, market prices could be above the producer minima and producers would still receive a support payment.

TABLE XIII. BEEF PRODUCTION AND EXPORTS, NEW ZEALAND, 1975-1985

Year[1]	Production	Exports[2]
	-000 tonnes -	
1975	542	192
1976	600	228
1977	565	261
1978	572	226
1979	501	245
1980	485	232
1981	512	234
1982	530	249
1983	493	232
1984	460	197
1985	453	226

[1]Year ended September 30
[2]Product weight

Source: GATT, International Meat Council, The World Market for Bovine Meat.

The extent to which these programs affected cattle numbers, beef production and exports is unknown. Therefore it is also unclear the extent to which the abandonment of these programs in 1985 will be influential.

Finally, it might be noted that, as in Australia, New Zealand cattle prices have been shielded from weakening low-grade beef prices in North America since 1980 by the depreciation of the NZ dollar vis-à-vis North American currencies. From early 1981 to late 1985 the N.Z. $ lost over half its value against the U.S. $., export prices reacted accordingly and the benefits were largely passed on to cattle producers (Table XIV).

TABLE XIV PRICES OF NEW ZEALAND COW BEEF IN THE U.S. AND OF COWS IN THE DOMESTIC MARKET, 1976-85

	Average Price of New Zealand Cow Beef in the USA		Average Price for Manufacturing-grade Cows
	U.S. $ per kg	N.Z. $ per kg	N.Z. $ per kg
1976	1.48	1.49	.45
1977	1.38	1.42	.48
1978	2.06	1.99	.56
1979	2.75	2.68	1.11
1980	2.61	2.67	1.08
1981	2.32	2.67	1.07
1982	2.18	2.90	1.25
1983	2.26	3.38	1.31
1984	2.13	3.69	1.63
1985	2.07	4.14	1.82

Sources: N.Z. Meat and Wool Boards' Economic Service, Annual Review of the Sheep and Beef Industries, 1984-85
International Monetary Fund, International Financial Statistics

c) The European Economic Community

One can observe a relationship between beef output in the EEC and the EEC's beef exports. This relationship was also apparent as regards exports to Canada, although it is complicated by a number of factors. First, only Ireland and Denmark are eligible to export to Canada (they are the only EEC countries free of foot-and-mouth disease). Second, the EEC has only provided export subsidies for beef exported to Canada since 1981; third, imports of beef from Denmark into Canada were banned from early 1982 to early 1984.

One of the most important factors influencing beef output in the EEC is the large proportion of beef which is derived from dairy cattle. About 80 percent of the cows in the EEC are dairy cows (26.2 million head out of a total of 33.5 million at December 1, 1985). Aside from factors which may affect dairy cow numbers this fact assures a large ongoing supply of low-grade beef regardless of the economics of the beef situation. More importantly, of course, is that the EEC has engaged in a policy of reducing milk output by imposing milk quotas. This has resulted in a high level of dairy cow kill and kill levels will remain high for several years. The effects of these measures in the dairy sector have been and will be particularly severe in Ireland and Denmark because of their higher than average dependence on the dairy industry.

Perhaps the most significant factor affecting beef output in the EEC has been the domestic cattle price support policy. The object of the policy is to maintain market prices near to target levels by purchasing product from the market. Beef is either placed into cold storage or is exported directly (with the aid of export subsidies). The result has been a very sharp upward trend in market prices since the activation of the program in the early 1970's. Table XV reveals that the average market price for cattle in the EEC increased by 40 percent between 1975 and 1985 (where the prices are denominated in ECU's). The price increase in Ireland was 112 percent, in terms of Irish currency.

This increase in prices in the EEC resulted in increased beef production, stable beef consumption and increased net exports in the EEC as a whole (Table XVI) and in Ireland in particular (Table XVI).

The trend in overall EEC output is of significance to Canada because other EEC countries have historically been the major export markets for Ireland and Denmark. As other EEC countries increase their self-sufficiency, there is pressure on Irish and Danish exporters to find markets elsewhere.

TABLE XV CATTLE PRICES IN THE EEC AND IN IRELAND

	Average Market Price for Slaughter[1] Cattle in the EEC	"Intervention" Price[2] for Slaughter Cattle in the EEC	Average Price for Slaughter Cattle in Ireland
	- ECU's[3] per kg -		- Irish pence per kg -
1975	1.14	1.19	37
1976	1.23	1.27	49
1977	1.29	1.32	60
1978	1.31	1.36	71
1979	1.31	1.38	75
1980	1.31	1.42	73
1981	1.45	1.53	88
1982	1.60	1.68	97
1983	1.61	1.83	101
1984	1.50	1.85	107
1985	1.57	1.85	104

1 weighted price of selected grades at selected markets in all EEC countries
2 price equal to 90 percent of the so-called "guide" price, if market prices are below this price EEC authorities are obligated to offer to buy beef into intervention.
3 European currency units, a weighted basket of the currencies of EEC countries.

Sources: GATT, International Meat Council, The World Market for Bovine Meat.
CBF - Irish Livestock and Meat Board, Annual Review 1985

TABLE XVI. PRODUCTION, CONSUMPTION AND TRADE OF BOVINE MEAT IN THE EEC, 1971-75 and 1981-85

	Production	Consumption	Net Exports
		- 000 tonnes -	
Annual Average			
1971-75	6,092	6,381	-359
1981-85	7,077	6,748	+311
Change	16.2%	5.8%	

Source: GATT, IMC, The World Market for Bovine Meat

TABLE XVI PRODUCTION, CONSUMPTION AND TRADE OF BOVINE MEAT IN IRELAND 1979-85

	Production	Per capita Consumption	Net Exports[1]
	(000 tonnes)	(kg)	(000 tonnes)
1979	426	23.1	13.7
1980	537	24.1	56.0
1981	440	26.2	55.8
1982	428	25.6	56.8
1983	465	23.7	89.4
1984	506	22.1	86.0
1985	520	21.9	116.0

1 To non-EEC destinations; does not include carcass weight equivalent of live cattle exports

Source: CBF - Irish Livestock and Meat Board, Annual Review 1985

d) Nicaragua

By Central American standards Nicaragua has historically been a fairly large producer and exporter of beef. For the period 1976-80 approximately one-half of its average annual production of about 140 million lb was exported. Of those exports the majority went to the United States. With the onset of political problems in the 1980's, however, both production and exports have decreased. Aside from internal problems a major factor contributing to this decrease has been trade friction with the U.S.A..

These problems can be seen as one of the factors contributing to Nicaragua's increased exports to Canada. From nothing prior to 1980 exports to Canada rose to a 1984 peak of 9.7 million lb (Table XVIII). In 1985 Nicaragua filled its quota of just over 4 million lb. The future level of imports from this country are difficult to predict. One should note however, that the U.S. has now imposed a fall embargo on imports from Nicaragua. Consequently it seems reasonable to presume that Nicaragua will have a continuing if not growing presence in the Canadian market.

TABLE XVIII BEEF PRODUCTION AND EXPORTS, NICARAGUA, 1981-1985

Year	Production	Exports	
		Total	To Canada
	(000 tonnes)		
1981	103.6	30.9	0.2
1982	119.0	22.0	0.4
1983	99.2	33.0	1.7
1984	99.2	26.5	9.7
1985	99.2	19.8	4.3

Source: USDA, FAS, World Livestock and Poultry Situation

5) Exchange Rates

As already has been mentioned, the change in the values of supplying countries currencies vis-à-vis the Canadian dollar has an impact on the prices received for their beef in the Canadian market, when those prices are expressed in their own currencies.

However, it is also apparent that these exchange rate movements have affected the Canadian dollar denominated price of imports of low-grade beef in Canada and the volume of beef imported.

The currencies of Australia, New Zealand and Ireland weakened steadily against the Canadian dollar from 1980 to 1985. The Australian and New Zealand dollars decreased more in early 1986 while the Irish punt began increasing as from September 1985 (Table XIX).

TABLE XIX. VALUE OF CERTAIN CURRENCIES IN CDN $[1]

	Australian $	New Zealand $	Irish Punt	U.S. $
1975	1.34	1.23	2.26	1.02
1976	1.22	.96	1.79	.99
1977	1.18	1.03	1.86	1.06
1978	1.30	1.19	2.19	1.14
1979	1.31	1.19	2.40	1.17
1980	1.33	1.13	2.41	1.17
1981	1.38	1.04	1.94	1.20
1982	1.25	.92	1.75	1.23
1983	1.11	.82	1.54	1.23
1984	1.14	.75	1.42	1.30
1985	.96	.69	1.47	1.37

[1] mid-points of inter-bank rates

Source: International Monetary Fund, International Financial Statistics.

In the cases of Australia and New Zealand the influence of exchange rates on exports to Canada is less obvious because the Canadian dollar also weakened relative to the U.S. dollar along with the Australian and New Zealand dollars. This development meant that the U.S. market relative to the Canadian market was generally rendered more attractive. On the other hand, for Ireland (which has had limited access to the U.S. market) the weakening of its currency was apparently a factor in the rapid rise of its exports to Canada to 1984.

6) Export subsidies and other export policies

Without the aid of export subsidies the EEC countries would not have been able to export beef to Canada. This is because the EEC's restrictive beef import policy and direct price support system has caused the prices of EEC beef to rise well above world levels[1] (it should be recalled that the largest proportion of EEC beef production is of low grade beef). Indeed it is clear that the export subsidy system, by removing product from the EEC beef market, has become a part (and an increasingly important part) of the EEC's price support system.

As is revealed in Table XX EEC export subsidies for beef exported to Canada have existed since 1981. To May 1984 they amounted to 1000 ECU's per tonne. They were lowered to 935 per tonne in May 1984 and then to 800 per tonne in July 1984 (in July 1984 1 ECU equalled about $1 Cdn., in July 1986 1 ECU equalled about $1.40 Cdn.). At 800 ECU's the export subsidy to Canada is not high compared to those offered for exports to other destinations. For example the subsidy on frozen boneless beef exported to North Africa is 1220 ECU per tonne and that on fresh carcass to North Africa is 1960 ECU per tonne. However, 800 ECU was more than sufficient to expedite exports to Canada.

TABLE XX. EEC EXPORT SUBSIDIES FOR BEEF EXPORTED TO CANADA[1]

	ECU's per kg[2]
1981 to May 11, 1984	1.00
May 11, 1984 to July 27, 1984	.935
July 27, 1984 to present	.80

1 for two categories of beef:
- boneless, excluding the thin flanks and shanks, each piece individually wrapped.
- other boneless.

2 depending on rates of exchange the refund varied from Cdn $.50 per lb. in 1983 to a low of Cdn $0.33 in early 1985.

Source: Official Journal of the European Communities.

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1 The EEC's beef import and cattle price support policies are well explained in CAP - Beef and Veal, an Explanation of the EEC Beef & Veal Regime (2nd revision), Meat and Livestock Commission of the United Kingdom.

It is not clear by how much EEC subsidies permit Irish and Danish exporters to lower their prices to compete in the Canadian market[1]. Revenue Canada estimated the amount of subsidy on Irish and Danish beef to be $0.81 per lb and $0.74 per lb respectively; it is also known that Irish and Danish beef was, during 1984-85, selling at prices $0.05 - $0.15 per lb below the price of equivalent Canadian product.

As previously mentioned, imports of manufacturing beef from the EEC have been subject to countervailing duties since March 27, 1986. These were imposed on a provisional basis from March 27 to July 25, 1986, and are now enforced on a permanent basis.[2] The rates of countervailing duty applied effectively excluded EEC product from the Canadian market and are expected to do so indefinitely.

Future Levels of Imports of Low-Grade Beef into Canada

Notwithstanding the virtual exclusion of the EEC from the Canadian market in 1986 imports of low-grade beef during the first nine months were up by about 5%. All of the increase has been accounted for by Australia. Imports from Australia were up by 91% during the period. Imports from New Zealand undoubtedly would have been much higher had there not been strikes at most packing plants in that country during February and March 1986. As it was imports from New Zealand were well above year-earlier during June and July 1986. Imports from Nicaragua were slightly under year-earlier levels.

The reason for the sharp increase in imports from Oceania is quite clear: forward offer prices for Oceanic product dropped sharply during the second quarter of 1986 while the Canadian low-grade market stayed fairly steady. Table XXI shows that forward prices on Oceanic beef were at a 4 cent premium to Canadian spot prices for fresh product during the first quarter of 1986 but

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1 This is because the subsidy is paid to the exporter after he effects the sale and the export. All of the subsidy may not be required to effect the sale.

2 Although they are being challenged in the GATT.

dropped to a 6 cent discount relative to Canadian spot prices in the second and third quarters. During July the discount averaged 13 cents. Discounts of this magnitude on Oceanic beef had not previously existed in the 1980's. Indeed periods when Oceanic product sold below Canadian spot at all were rare in the 1980's. It is probable, therefore, that low-grade beef imports will surpass the 1985 level of 121.4 million lb.

TABLE XXI PRICES OF CANADIAN FRESH AND AUSTRALIAN/NEW ZEALAND FROZEN MANUFACTURING QUALITY (85%CL) BONELESS BEEF

		Canada[1]	Australia/New Zealand	Canada minus Australia/ New Zealand
			- CDN $ per LB -	
1983	1	1.26	1.34	-0.08
	2	1.33	1.41	-0.08
	3	1.22	1.34	-0.12
	4	1.10	1.29	-0.19
1984	1	1.22	1.31	-0.09
	2	1.28	1.38	-0.10
	3	1.24	1.32	-0.10
	4	1.17	1.27	0.10
1985	1	1.32	1.39	-0.07
	2	1.31	1.27	+0.04
	3	1.25	1.23	+0.02
	4	1.22	1.33	-0.11
1986	1	1.27	1.31	-0.04
	2	1.26	1.20	+0.06
	3	1.30	1.24	+0.06

1 Toronto
2 Frozen boneless forward price, Toronto

Source: Canfax: Weekly Summary, Cattle Marketings Analysis and Outlook

There are a number of reasons for the widened spread between Canadian and Oceanic beef prices:

- Canadian low-grade beef market demand has been strong. Demand for beef strengthened due to sharply higher prices for hogs. As well for the first nine months of 1986 cow marketings decreased by about 14%, with slaughter off by about 10%. This in itself gave strength to the market.

- the U.S.'s whole-herd dairy buyout program resulted in sharply higher cow marketings and a weaker boneless beef market in the U.S. As a consequence demand for imported beef eased. Although the U.S.'s imports from all sources for the first six months were at about year-earlier levels (554.8 million lb) they decreased during the second quarter and prices for imported beef were sharply lower. As a consequence the Canadian market was relatively more attractive than the U.S. market and a certain amount of product was 'diverted' to Canada rather than going to the U.S.

- the value of the Australian dollar decreased by 17% against the Canadian dollar from March to the end of July of 1986. In addition, the New Zealand dollar remained at its relatively low level.

- Australian beef production increased by approximately 10% above year-earlier during the first 6 months of 1986.

It is generally expected that import levels in 1987 will not be as high as they were in 1986:

- it is expected that U.S. prices will strengthen relative to Canadian prices and will, therefore, attract a larger proportion of Oceanic product;

- it is expected that Australian beef production will decrease from 1985 levels, assuming good weather conditions.

Beyond 1987 one could anticipate modest growth in imports from this reduced 1987 level as production in Oceania grows and North American beef supplies shrink. (Appendix I contains the results of quantitative estimates of factors affecting imports from Oceania. These equations serve as the basis for the above comments).

Conclusion

This paper has attempted to clarify the position of imported beef in the Canadian market and to explain the factors which affect Canada's imports of this quality of beef. Although Canada has been and is currently a net surplus producer of manufacturing quality beef, this paper explains some of the reasons why offshore beef continues to be imported. Key to this trade is the Canada's relatively free access to the U.S. market. By extrapolation of course it can be easily seen that anything which affects Canadian access to the U.S. market would affect Canadian imports from offshore.

The last 2-3 years of Canadian import experience has been very unstable both politically and economically. Now that the question of EEC access to Canada has been resolved, however, one should expect more stable relationships with Canada's beef trading partners. An analysis of the relevant factors affecting our beef import situation suggests that we will experience a short term decrease (about one year) in imports from offshore but a longer term, modest, uptrend.

Bibliography

Agriculture Canada: Livestock Market Review

Australian Meat and Livestock Corp.: Statistical Review of Livestock and Meat Industries, various issues

Canadian Cattlemen's Association: Canfax, Weekly Summary, Cattle Market Analysis and Outlook

CBF - Irish Livestock and Meat Board: Annual Review 1985

Charlebois, Pierre: Modèle économétrique du Boeuf à Demande Désagrégée

Colman, David R.: "Elasticity of Demand for Two Grades of Beef", Illinois Agricultural Economics, July, 1978

GATT: Basic Instruments and Seleted Documents, 28th Supplement, Geneva, March, 1982

GATT, International Meat Council: The World Market for Bovine Meat, December 1985

Hinchy, M.: "The Relationship between Beef Prices in Export Markets and Australian Saleyard Prices", Quarterly Review of Agricultural Economics, Volume XXXI, Nos. 2-3, April/July, 1978.

International Monetary Fund: International Financial Statistics, Washington, various issues

Lattimore, R. and DeGorter, H.: Impacts of Beef Imports on the Canadian Beef Market, Agriculture Canada Working Paper, November 1979

New Zealand Meat and Wool Board's Economic Service: Annual Review of the Sheep and Beef Industries 1984-85, Wellington, August 1985

Official Journal of the European Communities: various issues

Reeves, G.W.: "The Australian Beef Cattle Industry: A Perspective on Demand and Supply Forces in Domestic and Overseas Markets", in Papers on the Australian Beef Cattle Industry, Bureau of Agricultural Economics, Canberra, 1982

Statistics Canada: Imports by Commodities, Catalogue No. 65-007, various issues

United States Department of Agriculture: Livestock and Meat Statistics, Washington, 1984

APPENDIX I

QUANTITATIVE ANALYSIS OF BEEF IMPORTS FROM OFFSHORE

Relationships were estimated between imports (by country) and factors affecting these imports. Practically speaking this entailed estimating relationships only for Australia and New Zealand. Given that the EEC is effectively excluded from exporting beef to Canada for the foreseeable future (because of the imposition of countervailing duties) no attempt was made to model that trade flow. Nor was any attempt made to estimate an import function for Nicaraguan beef given that imports from there are small and sporadic.

A major problem was the establishment of an estimation period. Firstly, Canada has only been importing significant quantities of beef from offshore sice 1969. Secondly, both Canada and the United States imposed major restrictions on imports in each of 1974, 1975 and 1976 and the world market was subjected to unusual influences in each of 1972 and 1973. Consequently it was decided to base the estimates only on the period 1977-85.

Four factors can be used to explain imports of beef from Australia and New Zealand: prices of manufacturing quality beef in Canada, the prices at which Australia and New Zealand are willing to sell beef to Canada, beef production in each of Australia and New Zealand, and the volume of beef imported into Canada from the EEC. The price and production variables are treated as exogenous.

As regards price, the hypothesis was that imports from each country were related to the prices of manufacturing beef exports to North America relative to the price of manufacturing beef in Canada. As this ratio increases imports decrease and vice versa. The price of Australian and New Zealand beef in North America is the CIF price of 85 percent chemical lean boneless frozen Oceanic beef in New York, expressed in Canadian dollars. For most of the period the Canadian price is the price of 85 percent CL boneless fresh beef in Toronto. From 1977 to 1979 this price is proxied by converting the price of D3,5 cows (Toronto) to a boneless weight equivalent.

Estimations of these relationships were made using all of annual, quarterly and bi-monthly data. (The rationale for trying bi-monthly data is that Oceanic beef is generally sold at the basis of 60-day delivery contracts: market conditions in the current two-month period determine imports in the subsequent two-month period.)

Unfortunately neither the bi-monthly nor the quarterly data yielded significant estimates, neither in terms of the significance of individual variables nor in terms of the explanatory power of the entire equation. On the other hand annual data yielded both significant variables and acceptable levels of explanatory power.

The major reason for including beef production in Australia and New Zealand is that throughout most of the estimation period Canadian prices were on an export basis vis-à-vis the United States market. In other words during some periods changes in exportable supplies from Oceania would not be reflected in changes in the price relatives for the two products: Canadian prices would go no lower since they were supported by U.S. prices.

The inclusion of EEC imports in the relationship was based on the assumption that there was a strong substitution relationship between Oceanic and European beef. European product could consistently undercut the price of Oceanic product.

Results

a) Australian Equation

Estimation indicated a strong and significant relationship with all the variables except for EEC imports. The signs of the variables were consistent with expectations. It was discovered that by eliminating the EEC import variable the explanatory value of the equation and the significance of the remaining variables increased.

The results of this latter specification are reported in Table XXII.

TABLE XXII

Variable	Parameter Estimate	t-statistic
Australian beef production	.013	6.0
Price of Australian beef relative to Canadian beef	-137.86	-3.02

$\bar{R}^2$ = .84

The parameter estimates suggest, for example, that a 100 million pound change (which would be a 2.8% change from the mean for the estimation period) in Australian production would cause Canadian imports to change by 1.3 million pounds in the same direction. Similarly, a one cent (Canadian) change in the price of Australian beef relative to Canadian manufacturing beef causes a 1.38 million pound change in imports in the opposite direction.

Although it is known that EEC imports had a strong effect on Australian exports to Canada, it would appear that its estimated impact is overridden by the impact of changes in beef production in Australia.

b) New Zealand Equation

The results for this equation were less satisfactory than those for the Australian equation. The only variable which was strongly significant was EEC imports. Production in New Zealand had a lower degree of significance and the relationship between Oceanic and Canadian manufacturing beef prices was not significant at all. On the other hand, the signs of the production and EEC import variable were correct and the overall significance of the equation (R^2 = .67) was acceptable.

TABLE XXIII

Variable	Parameter Estimate	t-statistic
Canadian imports from the EEC	-0.24	-1.91
New Zealand's production of beef for export	.06	1.54

$\bar{R}^2$ = .67

The results suggest, for example, that a 10 million pound change (which would be a 1.2% change from the mean for the estimation period) in export beef production in New Zealand would cause Canadian imports from New Zealand to change by 600,000 pounds in the same direction. The results also suggest that a one million pound increase in Canadian imports from the EEC would reduce imports from New Zealand by 240 thousand pounds.

TABLE XXIV ELASTICITY OF IMPORTS OF BEEF FROM AUSTRALIA AND NEW ZEALAND WITH RESPECT TO VARIOUS FACTORS

Elasticity with respect to	Australia	New Zealand
Production	.83	.91
Imports from EEC	-	-.05
Prices of Oceanic manufacturing beef relative to the price of Canadian manufacturing beef	-3.2	-

Table XXIV reports the various elasticities calculated from the regression results. They indicate for example that a 10 percent increase in beef production in Australia and New Zealand will increase Canadian imports from each by 8.3 percent and 9.1 percent respectively; a 10 percent increase in Canadian imports from the EEC will reduce imports from New Zealand by 0.5 percent; a 1 percent decrease in Australian beef prices relative to Canadian prices would increase Canadian imports from Australia by 32 percent.